during millimeter wave wireless communications between the millimeter wave wireless communications circuitry and the external device.

16. An electronic device, comprising:

wireless circuitry; and

an array of dual-polarization dual-frequency patch antennas coupled to the wireless circuitry, wherein the wireless circuitry includes adjustable circuitry that performs beam steering with the array of dual-polarization dual-frequency patch antennas.

17. The electronic device defined in claim **16**, wherein each of the dual-polarization dual-frequency patch antennas has a patch antenna resonating element and a ground, wherein the patch antenna resonating element and the ground lie in separate parallel planes, and wherein the patch antenna resonating element has first and second perpendicular central axes and first and second respective different dimensions along the first and second central axes.

18. The electronic device defined in claim **17** wherein each of the dual-polarization dual-frequency patch antennas has a first feed that lies along the first central axis of that antenna and has a second feed that lies along the second central axis of that antenna.

19. The electronic device defined in claim **18** further comprising a display, wherein the wireless circuitry comprises millimeter wave wireless communications circuitry.

20. The electronic device defined in claim **19** wherein the millimeter wave wireless communications circuitry is configured to handle IEEE 802.11 ad channels.

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